the zones that, when an odd number of minutes of R.A. is covered in the first series, it shall no longer be necessary to commence the second series at the half-minute, which would insure the exact coincidence of the corner of the first plate with the centre of the second, but to make the co-ordinates of the centre of each plate in the second series correspond to the nearest minute, midway between the extreme times covered on the first plates. The advantage of the alternative scheme proposed by the Sectional Committee is that a smaller number of plates will be required to cover the heavens. To photograph the whole sphere twice over with plates each of which accurately delineates four square degrees, and the sides of which nowhere overlap, would require 20,802. If the project of the "even minutes" and the recommendation of the Permanent Committee be strictly enforced, the number of plates required is 22,474; but if the alternative scheme of the Sectional Committee is adopted, this number is reduced to 22,054. The scheme founded on the employment of the mean minute is drawn up in detail, and seems to leave nothing to be desired, and it is sincerely to be hoped that the Permanent Committee will see their way to modify the resolution to which they have already agreed.

It is doubtful, however, whether the Committee will appreciate the advantage of reducing by about 2 per cent. the number of plates to be taken, involving as it does a reconsideration of their recorded decision. On another matter, there is exhibited a stout determination to uphold the resolutions in their integrity; and the spirit of loyalty to the decisions of previous Conferences may outweigh the expediency of reducing the labour of taking the negatives. In another paper the Astronomer-Royal has been bold enough, on sufficient grounds as it will no doubt appear, to recast the arrangement of the zones allotted to the participating Observatories. This proposed alteration has already called forth a protest against any change in the resolutions already carried. Admiral Mouchez, however, is adverse to a blind adherence to those early decisions. Infallibility, he remarks, does not obtain in science, and he advises the Permanent Committee to retain in its own hands any powers of modification and correction which may assist the onward progress of the work. The propriety of such a course seems to go without saying. It could never be sufficiently regretted if the decisions of immature experience limited and controlled the proposals of ripened judgment and more extended practice.

In the remaining portion of the fascicule, the subject of magnitudes is treated at considerable length, and from various points of view. Several resolutions have been adopted with the view of securing on the negatives, from which the catalogue is to be deduced, the images of stars of the eleventh magnitude; and in order that there may be no elasticity about the term "eleventh magnitude," it is proposed that the scale of Argelander shall be prolonged beyond the ninth, by increasing the time of exposure in the same ratio at which the light of a star diminishes between successive magnitudes of Argelander's scale, namely 2·5. It seems to have been the intention of those responsible for the application of this principle, that each observer is required to determine the time necessary to secure an image of a ninth magnitude star, and to prolong the exposure for the tenth and successive magnitudes by the continued employment of the coefficient 2·5. Whether this be the appropriate coefficient to ensure the reproduction on a negative of stars of a definite degree of brightness, as recorded by photometric methods, is open to question. A still larger coefficient necessitating longer exposures has been suggested, and further experiments in this direction are much needed. But admitting the theoretical accuracy of the scheme, its practical realization is surrounded with many difficulties, and while acknowledging the laudable effort on the part of the Committee to secure a strict uniformity of magnitude on the plates, it is doubtful whether, without some supplementary aids to observers, the surest method has been taken of carrying that intention into effect.

Foreseeing some difficulties in realizing the aim of the Committee in this direction, M. Trépied has proposed to construct, and to put into the hands of observers, photographic types of stars of the eleventh and fourteenth magnitude, in order that they may convince themselves after the development of a negative, that the prescribed limits of magnitude have been reached with a sufficient degree of approximation on each plate. He proposes to obtain, by photographing in various parts of the sky, an average conventional type of the photographic images of stars of the ninth, eleventh, and fourteenth magnitudes, all based upon the time in which the ninth magnitude star can be photographed. It will therefore only be necessary, he conjectures, for the observer to compare the images of the ninth magnitude star, when, if a similarity of appearance with the normal type results. it may be inferred that stars of the fainter magnitudes will be visible. It is a practical attempt to solve a difficult problem, and it is to be hoped the method may have a fair trial.

It is here presumed that the scale of magnitudes which obtains in photometry will be prolonged as far as the fourteenth magnitude. This point, however, has not been definitely settled by the Committee, and there are not wanting astronomers, of whom Prof. Holden is the principal exponent in this volume, who are in favour of an entire reconstruction of the system of magnitudes now in vogue, and for which this great undertaking, inaugurated under the auspices of Admiral Mouchez, offers an opportunity which is not likely to occur again.

W. E. P.

NOTES.

THE Chemical Society, having been founded in 1841, is in the fiftieth year of its existence and is the eldest among Chemical Societies. To celebrate this important occurrence in the history of the Society, it has been arranged that on February 24, at 3–5 o'clock p.m., a meeting shall be held at the Society of Arts, where the original meeting took place on February 23, 1841, at which the formation of the Society was decided on. At this meeting various addresses will be delivered, and delegates from other Societies will be received. On the evening of the same day, at 8.30 o'clock, the President and Council will hold a reception at the Goldsmiths' Hall, which has been most kindly placed at the disposal of the Society for the purpose by the Worshipful Company of Goldsmiths. On the evening of February 25, at 6.30 for 7 p.m., the Fellows and their friends will dine together at the Hôtel Métropole.

THE changes consequent on the retirement of Prof. Oliver, the late Keeper of the herbarium and library in the Royal Gardens, Kew, have now been completed. Mr. J. G. Baker, F.R.S., the Principal assistant, becomes Keeper; Mr. W. B. Hemsley, F.R.S., the Assistant for India, becomes Principal assistant; and Dr. Otto Stapf, Privat Docent in the University of Vienna, Assistant for India. Mr. Hemsley is well known in the botanical world as the author of the botanical part of Godman and Salvin's "Biologia Centrali-Americana," of the Report on the Botany of the *Challenger* Expedition, and of the "Index Floræ Sinensis" still in progress. Dr. Stapf is the author of a monograph on *Ephedra*, and has travelled for botanical purposes in Persia.

THE Bentham Trustees have secured the services of Prof. Oliver as consulting botanist; he will also edit Hooker's "Icones Plantarum," which is now published for the Trustees under the authority of the Director of the Royal Gardens.

Prof. Helmholtz will reach his seventieth birthday on August 31. Some of his very numerous friends and admirers will take advantage of the occasion to present him with a mark of their esteem. The details are to be settled by a Committee, consisting of Profs. Hofmann, Du Bois-Reymond, Virchow, and others.

The *Times* of January 21 publishes an excellent letter by Prof. W. E. Ayrton on the proposed South Kensington and Paddington Subway Railway, to which we have repeatedly called attention. During the last few weeks Prof. Ayrton and Prof. Rücker have been taking measures to ascertain the magnitude of the disturbance that would be caused by the subway railway if constructed along the proposed route. They did not employ any very delicate instruments, such as are necessary for physical research, but only the ordinary rough apparatus that is in daily use by students in a modern physical laboratory. Even such rough apparatus is seriously affected by mechanical vibration, and they have been led to the conclusion that the earth waves produced by the passage of large weights at high speeds affect measuring apparatus far more seriously than the noisy street traffic that rattles the windows of a house.

The death of Dr. Henry Bowman Brady, F.R.S., is announced. He died a few days ago at Bournemouth, in his fifty-sixth year. Dr. Brady was the author of many important memoirs on the Rhizopoda and other minute forms of invertebrate life. He was a Fellow not only of the Royal Society but of the Linnean and Geological Societies.

The Council of University College have arranged for a series of free evening lectures during the present term. One lecture will be given every week. On March 11, Prof. W. Ramsay will lecture on "Ice, Water, and Steam." A lecture on "The Universities of Egypt: Heliopolis, Alexandria, and Cairo," will be delivered by Prof. Stuart Poole on March 25.

On Monday evening, at the meeting of the Royal Geographical Society, Dr. Alexander Buchan read a paper on the meteorological results of the *Challenger* Expedition in relation to physical geography.

Dr. William Crookes delivered his presidential address before the Institution of Electrical Engineers on Thursday, January 15, taking as his subject "Electricity in transitu: from plenum to vacuum." In his introductory remarks he explained that he was about to treat electricity, not so much as an end in itself, but rather as a tool, by whose judicious use we may gain some addition to our scanty knowledge of the atoms and molecules of matter, and of the forms of energy which by their mutual reactions constitute the universe as it is manifest to our five senses. Explaining what he meant in characterizing electricity as a tool, he said that, when working as a chemist in the laboratory, he found the induction spark often of great service in discriminating one element from another, also in indicating the presence of hitherto unknown elements in other bodies in quantity far too minute to be recognizable by any other means. In this way, chemists have discovered thallium, gallium, germanium, and numerous other elements. On the other hand, in the examination of electrical reactions in high vacua, various rare chemical elements become in turn tests for recognizing the intensity and character of electric energy. Electricity, positive and negative, effect respectively different movements and luminosities. Hence the behaviour of the substances upon which electricity acts may indicate with which of these two kinds we have to deal. In other physical researches both electricity and chemistry come into play simply as means of exploration.

The annual general meeting of the Anthropological Institute of Great Britain and Ireland will take place on Tuesday, the 27th inst., at half-past 8 o'clock p.m. The chair will be occupied by Dr. John Beddoe, F.R.S., President, who will deliver an address.

The seventeenth general meeting of the Association for the Improvement of Geometrical Teaching was held at University College on January 17. Prof. J. J. Sylvester, F.R.S., was elected President for 1891. The following were chosen as Vice-Presidents: R. B. Hayward, F.R.S., Mr. R. Levett, Prof. G. M. Minchin, and Mr. R. Tucker. Papers were read by Miss Wood, on the use of the term "abstract" in arithmetic, and by Mr. E. T. Dixon, on the foundations of geometry; and Mr. E. M. Langley read some notes on statics and geometry. A petition prepared by the Decimal Association, urging the prompt introduction into the United Kingdom of a decimal system of coinage, weights, and measures, was signed almost without an exception by the members present.

The Paris Société de Biologie has elected, as Presidents for 1891, MM. Charles Richet, editor of the *Revue Scientifique*, and Malassez, the able histologist of the Collège de France.

M. Bonvalot, the explorer of Tibet, is to deliver an address on his travels, at the meeting of the Paris Geographical Society on January 31.

Messrs. Macmillan will issue immediately "Outlines of Psychology," a translation, by Miss M. E. Lowndes, of the well-known work by Prof. Höffding, of the Copenhagen University. The translation is from the German edition, but this has been accepted by Dr. Höffding as adequately representing the Danish original. The book is thoroughly scientific in method, the author regarding it as the task of psychology to investigate simply the phenomena of mind, not to deal with metaphysical explanations. He examines systematically the psychology of cognition, of feeling, and of the will, and has many suggestions to offer as to the relations between his special subject and physiology.

A correspondent writes from Edinburgh:—"We have had a wondrous sight here for the past few days—thousands of sea-gulls flying about the Botanic Garden. I have seldom seen so many together even at a nesting resort. One naturally supposed stormy weather at sea had driven them in, but no, it is a land storm which has occasioned their visit. One of the railway companies owns a bit of waste land near, and thither have been conveyed the tons upon tons of Christmas presents gone wrong in the hands of the company in consequence of the strike, and these are now being devoured by the gulls."

The Kew Committee have issued their Report for the year ending October 31, 1890. The usual meteorological and magnetical summaries are omitted, and it has been decided to present them in future to the Royal Society as soon after January 1 as possible. Nearly 20,000 instruments of various kinds, mostly clinical thermometers, were compared in the past year, and over 500 entries of watches for rating were made. Sketches of sunspots were made on 198 days, and the groups numbered after Schwabe's method. Among the various experiments carried on may be mentioned an ingenious method, suggested by General Strachey, for determining the height and velocity of clouds. Photographs by means of two fixed cameras are taken simultaneously of the area of the sky surrounding the zenith within a circle of a radius of about 15°. The pictures are afterwards carefully superposed, and a simple measurement of the distance between the images of the zenith points, which are marked by intersecting lines, gives a means of readily determining the height of the cloud. A second measurement of the displacement of the zeniths from photographs taken after a given interval shows the rate and the direction of movement of the cloud. Twenty groups of clouds, giving heights extending from 1½ to 8 miles, and rates of motion from 5 to 64 miles an hour, have been photographed and measured during the past summer. No very exceptional magnetic disturbances were recorded at the Observatory during the year; the principal disturbances occurred on November 1 and 26–28, 1889.

The great anticyclone which was situated over Europe and embraced the greater part of this country during December last made that month, as a whole, about the coldest December of any on record over the southern part of England. It is seen from the Pilot Chart of the North Atlantic Ocean that the storms of December were confined almost entirely to the Atlantic coasts of the continent of North America. None of the depressions were able to force a passage through the anticyclone, and very few of them passed to the eastward of longitude 40° W. within the area of observation. The Pilot Chart shows that the very severe storm that passed close to Cape Race on November 29 was followed two days later by a hurricane, said to have been the most severe that has been experienced in the Gulf of St. Lawrence for sixty years. Many observers reported hurricane force; and the barometer fell to 27·95 inches on December 1. There was also a severe storm off St. John's, Newfoundland, on the 8th, and others near Hatteras on the 16th and 26th. A large iceberg (estimated to be half a mile long) was seen on December 13, in lat. 49° 39′ N., long. 47° 50′ W. A supplement to the Pilot Chart shows the positions of the ice in the North Atlantic for each month from December 1889 to November 1890—none of the months being entirely free from ice.

To enable the Indian Observatories Committee at home to judge of the amount and nature of the work done at the Madras Observatory, the Government Astronomer has been instructed, says the *Times of India*, to prepare in future detailed and technical reports, unlike the present reports submitted to the Government, which, though called administration reports, contain nothing of interest or value to the scientific public.

The New York *Engineering and Mining Journal* says of a Bill before Congress making an appropriation of 100,000 dollars for a topographical survey of the Territory of Alaska, reported in September by the House Committee on Military Affairs, that "the proposal made in the Bill is to send out a properly-equipped party with instructions to establish a post on the Upper Yukon River, and to operate therefrom in all directions. This territory of more than 600,000 square miles has been in the possession of the United States for twenty-three years. Nevertheless its interior is less known than the centre of the African Continent. The surveys which have been conducted near the coast have been imperfect, and of but little practical value. The Canadians have done much more in making explorations in and surveys of the Alaska frontier than we have; they invited us to join them in the work some years ago. These facts reflect no credit upon a nation of 63,000,000 of progressive people possessing an overflowing Treasury. The region should be surveyed, and its resources of all descriptions ascertained. The Bill, designed to furnish the means to such an end, should become a law."

Early this year an expedition, under the leadership of Dr. C. von Drygalski, of Berlin, will start for the west coast of Greenland, to examine the condition of the ice.

Director Scherenberg, late of Grohn, has presented a collection of over 800 of the birds of North Germany to the Bremen Natural History Museum.

From Janjici, near Zerica, in Bosnia, is reported an earthquake, which occurred on January 5 at 8h. 2m. p.m. The eruption was exceedingly violent, lasting for three seconds, and being accompanied by subterranean noises. On January 7 a violent shock was experienced at Granada.

Despatches received at New York from Mexico City announce that five shocks of earthquake occurred on January 17, at Jacula, in the State of Hidalgo, Mexico.

According to a telegram from Algiers, the villages of Gouraya and Villebourg have been almost wholly destroyed by an earthquake, and about forty natives have perished. The damage done to property is estimated at half a million francs.

Some alarm was caused at Geneva, on January 20, at 4 a.m., by slight shocks of earthquake which were distinctly felt there. On the same day, several shocks were felt at Belfort.

In February 1890, the Island of Bogoslaw (37 nautical miles north-west of Unalaska), in the Behring Sea, was disturbed by a volcanic eruption, which created three small islands in its immediate vicinity. The island itself was raised 1000 feet, and the flames accompanying the outbreak were visible on Mount Macushin (5500 feet). The ashes collected at Iliuliuk, in Unalaska, contained a considerable percentage of magnetic ore.

The following report from the Professor of Geology in the University of Oxford, on the results of the geological work during the last summer meeting, has been published:—"The interest in the subject was well kept up, and the amount of systematic study was somewhat larger than during 1889. The increase in this direction was not large, but quite large enough to be sensible. I have received letters from students who worked with me both in 1889 and 1890, saying how their visit to Oxford gave stimulus and encouragement to them to carry on at home work they had begun here, and how greatly even the small amount of instruction they received here helped them in their further studies. One young lady who knew scarcely anything of geology when she came to me in 1889, and to whom I gave occasional help and advice for home reading, after she left Oxford obtained a first class medal in geology at the St. Andrews examination for women, in January last."

Captain de Place, of Paris, has invented an instrument for detecting flaws in metal castings and forgings, which is called the sciséophone. According to the *Times*, the apparatus consists of a small pneumatic tapper worked by the hand, and with which the piece of steel or iron to be tested is tapped all over. Connected with the tapper is a telephone with a microphone interposed in the circuit. Two operators are required, one to apply the tapper, and the other to listen through the telephone to the sounds produced. These operators are in separate apartments, so that the direct sounds of the taps may not disturb the listener, whose province it is to detect flaws. The two, however, are in electrical communication, so that the instant the listener hears a false sound he can signal to his colleague to mark the metal at the point of the last tap. In practice the listener sits with the telephone to his ear, and so long as the taps are normal he does nothing. Directly a false sound—which is very distinct from the normal sound—is heard, he at once signals for the spot to be marked. By this means he is able not only to detect a flaw, but to localize it. Under the auspices of the South-Eastern Railway Company, a demonstration of the sciséophone was given last week by Captain de Place, at the Charing-cross Hotel, in the presence of several members of the Ordnance Committee and other Government officials. Mr. Stirling, the company's locomotive superintendent, had previously had several samples of steel, wrought iron, and cast iron prepared with hidden flaws known only to himself. The first sample tested by Captain de Place he pronounced to be bad metal throughout, which Mr. Stirling stated he knew it to be. Other samples were tested, and the flaws localized by means of the apparatus. On some of the bars of wrought and cast iron being broken, the internal flaws—the localities of which were known to Mr. Stirling by his private mark—were found to have been correctly localized by Captain de Place. On the other hand, some bars were broken at points where the apparatus indicated a flaw, but where the metal proved to be perfectly sound; so that the apparatus is not yet quite trustworthy.

M. JULES RICHARD has recently discovered in the two lakes of the Bois de Boulogne, Paris, numerous specimens of hitherto unknown Crustaceans. Among the strangest "finds" of this zoologist is that of a new species of the Copepod genus *Bradya*, the *B. edwardsi*. This species is a blind one, and is the only species of the genus hitherto found in fresh water. *B. typica* was discovered in a fjord near Christiania, another one was found off the Scilly group, and *B. limicola* lives in brackish waters at Ocean Springs (Mississippi). Facts go to show that this fresh-water species is of subterranean origin, as it comes, or seems to come, from the water of the artesian well at Passy, which is sent to the Bois de Boulogne lakes. Both of these lakes are swarming with a large variety of Entomostraca.

WE learn from the quarterly statement of the Palestine Exploration Fund that the famous "Siloam inscription" has been cut out of its place in the rock tunnel and carried away. It was broken in removal, and the fragments are reported to have been sold to a Greek of Jerusalem. On receiving this intelligence, the Executive Committee of the Fund forwarded to Hamdi Bey a resolution expressing their regret, and the hope that immediate steps would be taken to secure the fragments. Fortunately an accurate copy of this inscription had been made, and published by the Fund. The occurrence, as the Committee claim, shows how valuable the work done by the Fund has been in preserving records of monuments which are in daily danger of being destroyed.

THE Committee of the Palestine Exploration Fund are about to issue "Fauna and Flora of Sinai, Petra, and the Wâdy 'Arabah," by Mr. H. Chichester Hart.

THE third volume of the "Educational Annual" has been issued. The work has been carefully revised, and the statistics have been brought down to date from the public records.

M. ROUZAUD, of the Montpellier Faculty of Sciences, has issued a handsome volume recording the principal incidents connected with the celebration of the 600th anniversary of the Montpellier University last June.

THE new number of the Journal of the North China Branch of the Royal Asiatic Society will, according to a recent announcement of the Secretary, open with a valuable paper, the result of many years' research and of much study by a ripe scholar, Dr. Bretschneider. It is styled "Botany of the Chinese Classics," and is, in fact, a continuation of the studies condensed in a paper by the same author, which appeared, under the title "Botanicon Sinicum," in the Journal some ten years ago. The manuscript has arrived safely from St. Petersburg, and is in the printers' hands. The paper will have the benefit of revision and annotation by Dr. Faber, a high authority on botanical subjects; and thus it will doubtless serve as an extremely valuable work of reference. Dr. Bretschneider is at work on another paper—which, however, it is feared, will not be ready for some years—on Chinese medicines.

A NEW series of well-crystallizing salts of iridium-ammonium have been prepared by Dr. Palmaer in the laboratory of the University of Upsala, and are described by him in the latest number of the *Berichte*. They are pentammonium salts corresponding to the well-known *purpureo* compounds of cobalt, chromium, and rhodium. The chloride, $Ir(NH_3)_5Cl_3$, is readily obtained by the action of ammonia upon the tri- and tetra-chlorides of iridium. It crystallizes in beautiful rhombic pyramids, completely isomorphous with the purpureo cobalt and rhodium chlorides. Usually the crystals possess a deep ruby-red colour, but this is found to be due to a trace of iridium-ammonium chloride, and by other modes of preparation crystals may be obtained which are merely pale yellow in colour. It is interesting that only two of the three chlorine atoms are removable by means of strong sulphuric acid or silver nitrate, the third chlorine atom, as in case of the cobalt and rhodium salts, being much more tenaciously held. The product of the action of sulphuric acid is consequently the salt $Ir(NH_3)_5ClSO_4$, which crystallizes in bright yellow monoclinic crystals, possessing extraordinarily large double refraction. When the solution of this salt is mixed with solutions of barium bromide and iodide respectively, rhombic crystals of the salts $Ir(NH_3)_5ClBr_2$ and $Ir(NH_3)_5ClI_2$ separate out; these crystals are strictly isomorphous with those of the original trichloride, and the angles are very nearly identical. The tribromide, $Ir(NH_3)_5Br_3$, was obtained from the trichloride by boiling the latter with soda, and afterwards treating in the cold with concentrated hydrobromic acid which precipitated a roseo-bromide; the filtered roseo-bromide was found to be readily soluble in dilute hydrobromic acid, and the solution yielded the pentammonium tribromide on gently warming in the form of yellow crystals, also isomorphous with the trichloride. The salt $Ir(NH_3)_5BrSO_4$ was also prepared, sulphuric acid being incapable of removing the third atom of bromine, which, like the third atom of chlorine, is evidently combined in an unusually stable manner. In addition to the preparation of these salts, the hydrate, $Ir(NH_3)_5ClOH$, has also been obtained as a strongly alkaline solution, which absorbs carbon dioxide, and is capable of expelling ammonia gas from sal-ammoniac.

THE additions to the Zoological Society's Gardens during the past week include a Ring-tailed Coati (*Nasua rufa*) from South America, presented by Mr. E. Hopkinson; two Large Hill-Mynahs (*Gracula intermedia*) from Northern India, deposited; a Red Lory (*Eos rubra*) from Moluccas, purchased.

OUR ASTRONOMICAL COLUMN.

STARS HAVING PECULIAR SPECTRA.—In two communications to *Astronomische Nachrichten*, No. 3011, Prof. Pickering adds the following to his list of stars having peculiar spectra:—

Designation of star.	R.A. 1900.	Decl. 1900.	Mag.	Description of spectrum.
	h. m.	° ′		
D.M. + 54°·431	1 53·0	+54 20	9·0	III. Type. Bright hydrogen lines.
——	1 55·1	+56 15	—	III. Type. ,, ,,
S.D. − 10°·513	2 30·2	− 9 53	8·0	IV. Type.
D.M. + 56°·686	2 33·9	+56 18	9·1	Bright lines.
D.M. + 56°·731	2 44·8	+56 31	9·5	,, ,,
Cord. G.C. 22280	16 21·2	−18 14	4·6	F line bright.
S.D. − 10°·5057	19 17·7	−10 54	7·0	IV. Type.
D.M. + 36°·4028	20 17·8	+36 36	9·5	Bright lines.
Cord. G.C. 30526	22 16·6	−46 27	6·7	IV. Type.

The first and second stars on the list are in Perseus. Their spectra are similar to that of Mira Ceti. An examination of the Harvard College Observatory photographic chart plates prove that they also are variables. The fourth and fifth stars, also in Perseus, have a spectrum resembling that of the Wolf-Rayet stars in Cygnus. With respect to these it is remarked: "Probably we have here a group similar to that in Cygnus, only comprising much fainter stars, since several other objects in this region are suspected of having bright lines." The star Cordova, Gen. Cat. 22280, is χ Ophiuchi. Its spectrum is similar to that of δ and μ Centauri. The spectrum of D.M. + 36°·4028 is like that of the Wolf-Rayet stars.

The hydrogen line F is bright in the spectra of Harvard Photometry 3321 (v Sagittarii) and 3747. In the former star the hydrogen lines are very faint, and of the same intensity as the additional dark lines. Other bright lines are also seen.

The star Cord. G.C. 15177, noted in a previous communication as having a spectrum consisting mainly of bright lines (NATURE, vol. xlii. p. 429), should be Cord. G.C. 15,220.

HARVARD COLLEGE OBSERVATORY.—A series of articles on the history of this Observatory was written last year for the